

Table S1. Summary of tRNA m¹A58 methylation in human tRNAs, related to Figure 2 and Figure S2.

| tRNA | m ¹ A site | ALKBH1 target |
|--------------------|-----------------------|-----------------|
| Ala ^{AGC} | Yes | Not validated |
| Ala ^{CGC} | Yes | Yes (this work) |
| Ala ^{UGC} | Yes | Yes (this work) |
| Arg ^{ACG} | Yes | Not validated |
| Arg ^{CCG} | Yes | Not validated |
| Arg ^{CCU} | Yes | Not validated |
| Arg ^{UCG} | Yes | Not validated |
| Arg ^{UCU} | Yes | Not validated |
| Asn ^{GUU} | Yes | Yes (this work) |
| Asp ^{GUC} | No | Not validated |
| Cys ^{GCA} | Yes | Yes (this work) |
| Gln ^{CUG} | Yes | Yes (this work) |
| Gln ^{UUG} | Yes | Not validated |
| Glu ^{CUC} | No | Not validated |
| Glu ^{UUC} | Yes | Yes (this work) |
| Gly ^{CCC} | Yes | Not validated |
| Gly ^{GCC} | Yes | Yes (this work) |
| Gly ^{UCC} | Not known | Not validated |
| His ^{GUG} | Yes | Yes (this work) |
| Ile ^{AAU} | Yes | Not validated |
| Ile ^{UAU} | Yes | Not validated |
| Leu ^{AAG} | Yes | Yes (this work) |
| Leu ^{CAA} | Yes | Not validated |
| Leu ^{CAG} | Yes | Not validated |
| Leu ^{UAA} | Yes | Not validated |

| | | |
|---------------------|-----------|-----------------------------|
| Leu ^{UAG} | Not known | Not validated |
| Lys ^{CUU} | Yes | Not validated |
| Lys ^{UUU} | Yes | Yes (this work) |
| Met ^{CAU} | Yes | Not validated |
| iMet ^{CAU} | Yes | Most likely yes (this work) |
| Phe ^{GAA} | Yes | No (this work) |
| Pro ^{AGG} | Yes | Not validated |
| Pro ^{CGG} | Yes | Not validated |
| Pro ^{UGG} | Yes | Not validated |
| Ser ^{UCA} | Yes | Not validated |
| Ser ^{AGA} | Yes | Not validated |
| Ser ^{CGA} | Yes | Not validated |
| Ser ^{GCU} | Yes | Not validated |
| Ser ^{UGA} | Yes | Not validated |
| Thr ^{AGU} | Yes | Not validated |
| Thr ^{CGU} | Not known | Not validated |
| Thr ^{UGU} | Not known | Not validated |
| Trp ^{CCA} | No | Not validated |
| Tyr ^{GUA} | Yes | Yes (this work) |
| Val ^{AAC} | Yes | Yes (this work) |
| Val ^{CAC} | Yes | Yes (this work) |
| Val ^{UAC} | Not known | No (this work) |